

IN THE CLAIMS

Please change the heading on page 24 before the claims as follows:

CLAIMS ~~Patent claims:~~

What is claimed is:

1. (currently amended) A ~~r~~radiation shielding arrangement for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one shielding element made of a first material including~~which contains~~ bound water.
2. (currently amended) The ~~r~~radiation shielding arrangement according to claim 1, wherein ~~characterized in that~~ said~~the~~ first material includes~~contains~~ gypsum in at~~the~~ bound state in at~~the~~ chemical composition $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$.
3. (currently amended) The ~~r~~radiation shielding arrangement according to claim 2, wherein ~~characterized in that~~ the shielding element includes~~comprises~~ a gypsum wall.
4. (currently amended) The ~~r~~radiation shielding arrangement according to claim 3, wherein ~~characterized in that~~ the gypsum wall has a thickness that~~which~~ is matched to at~~the~~ radiation spectra of a high-energy particle accelerator.
5. (currently amended) The ~~r~~radiation shielding arrangement according to claim 3, wherein ~~characterized in that~~ the gypsum wall has a

thickness which is greater than or equal to at the secondary radiation equilibrium thickness, in particular a thickness of at least 2 m, at least 5 m or at least 7 m.

6. (currently amended) The radiation shielding arrangement according to claim 1, wherein said at least one shielding element has a built in the form of a multilayer construction.
7. (currently amended) The radiation shielding arrangement according to claim 1, wherein said at least one shielding element has a built in the form of a modular construction.
8. (currently amended) The radiation shielding arrangement according to claim 1, wherein said at least one shielding element includes characterized by a loadbearing layer which is arranged on a first side of said the shielding element and has at least a minimum thickness which is dimensioned such that said at least one shielding element the radiation shielding arrangement, in particular the arrangement of shielding element and said loadbearing layer, is are self-supporting.
9. (currently amended) The radiation shielding arrangement according to claim 1, wherein said characterized in that the loadbearing layer includes comprises concrete formwork.
10. (currently amended) The radiation shielding arrangement according to claim 1, wherein said characterized in that the shielding element has two sides with said concrete is provided with

formwork is on said both sides, in particular of concrete.

11. (currently amended) The rRadiation shielding arrangement according to claim 1, further comprising characterized by a neutron absorber layer having which contains a neutron-absorbing material.
12. (currently amended) The rRadiation shielding arrangement according to claim 1, further comprising characterized by a neutron absorber layer having which contains boron, cadmium and gadolinium.
13. (currently amended) The rRadiation shielding arrangement according to claim 1, further comprising characterized by a neutron absorber layer having which contains boron-paraffin.
14. (currently amended) The rRadiation shielding arrangement according to claim 10, wherein a characterized in that the neutron absorber layer is arranged within said concrete the formwork or between said concrete the formwork and said the gypsum wall.
15. (currently amended) The rRadiation shielding arrangement according to claim 8, wherein said characterized in that the loadbearing layer includes comprises a neutron-absorbing material.
16. (currently amended) A rRadiation shielding arrangement, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one spallation layer including comprising a material wherein which is

~~characterized in that~~ spallation reactions are triggered by means of neutron irradiation.

17. (currently amended) The radiation shielding arrangement according to claim 16, ~~wherein~~ characterized in that said material is a metal.
18. (currently amended) A use of gypsum from flue gas desulphurization plants for producing a radiation shielding arrangement for shielding neutron radiation and gamma radiation from high-energy particle accelerators, storage rings, target, experimental or analytical devices.
19. (currently amended) A use of a shielding element which contains gypsum for shielding radiation from a device selected from the group consisting of a particle accelerator, a particle storage ring, a target device, an experimental device and/or an analytical device.
20. (new) The radiation shielding arrangement according to claim 3, wherein said gypsum wall has a thickness that is matched to a radiation spectra of a high-energy particle storage ring for a particle selected from the group consisting of electrons, positrons and ions.
21. (new) The radiation shielding arrangement according to claim 3, wherein said secondary radiation equilibrium thickness is selected from the group consisting of at least 2 m, at least 5 m and at least 7 m.